

**Notice of Allowability**

Application No.

10/712,549

Examiner

Rip A. Lee

Applicant(s)

GRABAU, TED D.

Art Unit

1713

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to July 11, 2007.
2. ☒ The allowed claim(s) is/are 34-43.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

in Abstract (paragraph [0032]), delete the following two sentences:

Ranges may be expressed herein as from "about" or "approximately" on particular value and/or to "about" or "approximately" another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value.

*Allowable Subject Matter*

The following is an examiner's statement of reasons for allowance: Claims 34-43 are allowed.

The present invention is drawn to an actuator housing comprising a pair of flanges cooperatively arranged to form the actuator housing, each flange being coated with a resin-containing coating composition and an actuator diaphragm compressively retained between and in contact with the flanges. The actuator diaphragm is comprised of a rubber composition which comprises a copolymer of 10-45 parts by weight (pw) of unsaturated nitrile and 55 to 90 pw of conjugated diene, 1 to 30 parts per hundred parts by weight of rubber (phr) of plasticizer wherein the plasticizer is soluble in the resin of the coating composition in an amount of at least 0.1 g per 100 g of the resin, about 10 to about 80 phr of silica, 0.1 to 20 phr of coupling agent, and about 0.01 to about 10 phr of vulcanizing agent. The actuator diaphragm is held under sufficient compression to produce a bond between the diaphragm and the resin containing coating composition on the flanges for increased retention of the actuator diaphragm between the flanges.

The following prior art is relevant:

Tuckey (U.S. 5,727,529) teaches a fuel pressure control unit comprising a housing that encloses a flexible diaphragm valve made from a fabric reinforced acrylonitrile-butadiene rubber.

Hisada (U.S. 3,834,231) discloses a flexible diaphragm made from a heat shrunk nylon or polyester fabric coated one or both sides with vulcanized nitrile-butadiene rubber. The diaphragm may be secured onto the flange of a housing by application of an external adhesive.

Yamagishi *et al.* (U.S. 6,003,876) teaches roller bearing seal comprising 100 pw of nitrile-butadiene rubber, 45 pw of silica, 5 pw of dioctyl phthalate, 1 pw of coupling agent, and 3 pw of peroxide.

Okumoto *et al.* (U.S. 4,486,480) discloses an oil resistant rubber hose composition comprising nitrile-butadiene rubber, carbon black, sulfur, and dibutoxyethoxyethyl adipate as plasticizer.

JP 2000-317951 discloses a post-vulcanization adhering method of bonding silica containing nitrile-butadiene rubber to an adhesive treated metal by coating the rubber with a plasticizer having a solubility parameter of 9.5 or above.

None of the references discloses the subject matter of the instant claims. It would not have been obvious to one having ordinary skill in the art to arrive at the subject matter of the instant claims based on the cited references, singularly or in combination.

Additional references cited on the accompanying PTO-892 show the state of the art with respect to NBR compositions with end use as seals or diaphragms.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Art Unit: 1713

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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July 19, 2007



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